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Such words could only come from men who felt for science the same regard which he believed he had himself shown during his lifetime. It might, perhaps, appear strange that a foreigner should come forward to propose what he called a national British undertaking. But when they considered that he had been travelling along the coast of Australia at a time when the gold-fields had not been discovered, and when they further considered that he established on that continent the first observatory for physical observation, the results of which he had published in several volumes, he thought they would admit that he was entitled to consider himself an Australian colonist, and that he had not unsuccessfully aided, to the best of his ability, in the noble effort of British colonisation in Australia.

2. *Geographical Results of the Abyssinian Expedition, No. 4.* By C. R. MARKHAM, Esq., Secretary R.G.S., Geographer to the Abyssinian Expedition.

IN this Memoir, the fourth and concluding one of the series, Mr. Markham commenced by stating that the country between Antalo and Magdala is a mountainous region, entirely composed of volcanic rock, but divided into two very distinct parts by the river Taccaze. That to the north is an elevated ridge, crossed by several lofty ranges of mountains; whilst that to the south is a plateau of still greater height, cut by ravines of enormous depth. From Senafé to Antalo the rocks are almost all aqueous or metamorphic, with a few trachytic and basaltic boulders on the surface; but to the southward of Antalo there is a complete change, and this change is not confined to the geological features of the country. The scenery becomes grander, the vegetation more varied and more abundant, and the supply of water more plentiful. The peculiar feature of the country south of Antalo is that, while the backbone of the mountain-system runs north and south, with drainage to the east and west, it is crossed by ranges of great elevation, running across it in the direction of the drainage, and dividing it into sections. Of this nature are the Woderat and Ferrah ranges. From the Ferrah Amba there is a range of mountains running north and south, and forming a distinctly-marked watershed as far as Ashangi. The lower country to the eastward of this alpine region, from Antalo to the Taccaze, is occupied by lawless tribes of Mohammedan Gallas, who make incessant raids on the Christian inhabitants of the highlands, whose villages are seen usually perched on isolated hills surrounded by thick fences.

The mountainous country between Makhan and the basin of Lake Ashangi, about 14 miles across, is well wooded, the hill-sides being covered with junipers as tall as Scotch firs, flowering St. John's wort growing as trees, and a heath bearing white flowers, and

forming a bush sometimes 30 to 40 feet high. The drainage is still to the eastward, lofty peaks shutting out the view to the west. Looking from the highland the bright blue lake of Ashangi appears far below, bordered by a richly-cultivated plain and surrounded by mountains on every side. The lake is four miles long by about three broad, and is 8200 feet above the level of the sea. Mr. Markham found its latitude by meridian altitude of * Dubhe to be $12^{\circ} 35' 26''$ N. It furnishes one of the very rare examples of a fresh-water lake without any apparent outlet, the water probably escaping at some point on the eastern side by percolation; the surrounding mountains are all volcanic.

South of the Lat valley, the Dafat mountain-range crosses the line of the watershed, and about 16 miles further south is the still loftier parallel range of Abuya-meder, which forms the northern boundary of the valley of the Taccaze; the Dafat Pass was found to be 9820 feet above the sea-level. The country hereabout is well wooded, and a rippling stream flows down every valley; there is much cultivation in terraces up the mountain-sides. The streams flowing down the deep ravines to the south unite, and form the Taccaze. The most distant source was some 10 miles away due east from the line of march, in Angot. The Taccaze flows from east to west in a deep valley; the bed of the river being 7795 feet, and the summit of the plateau on its southern bank 10,700 feet above the level of the sea.

From the Wondaj Pass, south of the Taccaze, the British army obtained their first view of the Wadela plateau, a mighty wall 2600 feet high, rising abruptly from the valley, and ending in a level summit at an elevation nearly equal to that of the Wondaj Pass itself. At this season (March) the river was but a small stream, easily crossed dryshod by jumping from stone to stone; but the extent of the river-bed showed what it was during the rainy season, even at this short distance from its source. With the exception of clumps of kosso and other trees round the churches, Wadela is without either trees or shrubs, the hills being covered with grass and small wild herbs, the most common of which is a bright yellow composite shrub. The scenery is wild and desolate, not unlike that of the interior of the Orkney Islands. The people weave woollen and cotton cloths, the wool being raised on the plateau. The English troops, after crossing the Taccaze and reaching the plateau, instead of marching direct on Magdala by Kosso Amba, turned off in a south-west direction in order to reach the great road made by King Theodore across the Jita ravine, from the Wadela to the Talanta plateau. A large part of the length of Wadela was thus traversed, the

ground sloping gradually from 10,400 feet to 9100 feet, which is the height of the precipices above the Jita. The ravine is cut down to a depth of 3500 feet, through columnar basalt, the detritus in the slow course of ages having been carried down to fertilise the Delta of the Nile. Had it not been for King Theodore's marvellous road, this ravine would have been the most formidable obstacle on the whole line of march.

The Talanta plateau is a mass of columnar basalt, between the rivers Jita and Beshilo; it is a flat plain, quite treeless except the clumps round a few churches. The flora at this high elevation resembles that of north temperate climates; dog-roses, nettle, yellow and purple compositæ, clover, and plantain. The ravine of the Beshilo is even deeper than that of the Jita, the bed of the river being only 5638 feet above the sea, and the river itself was up to the horses' girths, being far the largest volume of water that had been met with in any stream on the line of march. The length of the descent was 4 miles 4 furlongs, and the width of the river-bed 113 yards.

The Magdala system or knot of mountains rises up between two ravines, south of the Talanta plateau, the sides to the east and west being steep and nearly 3000 feet high. Magdala itself is a mass of columnar basalt, with scarped perpendicular sides and with a plateau on the top, about two miles long by half a mile across. It is 9050 feet above the level of the sea, and thus a few feet lower than the Talanta plateau. Besides Magdala, the group comprises the peak of Selassie and the plateau of Fala; the three heights being connected by saddles at lower elevations. Between Magdala and Selassie is the saddle of Salamgi, 6 furlongs in length, a flat plain on which the camp of King Theodore was pitched; with perpendicular cliffs on either side, whence the mountain-sides slope rapidly down to the Menchura and Kulkula ravines. The height of Selassie is 9200 feet above the sea, and is composed of trachyte of a light colour. It is connected with Fala by a saddle some 100 feet below the level of Salamgi, which is approached from it by a rocky zigzag path. But these three heights are not in a line; they form an angle of which Selassie is the apex, and Magdala and Fala the two legs. At the foot of Fala is the small plain of Arogi, 1 mile and 3 furlongs across, with a gradual slope of 440 feet, and 1140 feet below the Fala plateau.

The Magdala district is not properly speaking a mountainous region, but simply a portion of the great basaltic mass of which Talanta is a part, cut up and furrowed by the action of water during many ages. The climate of the region between Antalo and Magdala

was, in March and April, healthy and agreeable, the hot sun being tempered by cool winds during the day, and the nights being cold. From March 12th to 24th there was not a drop of rain, but in the evening of the latter day a heavy thunderstorm broke over the camp at Dildi, with rain lasting from 6 to 9 P.M. Other showers occurred afterwards. The Wadela plateau was excessively cold, with ice forming in the night, and the grass covered with hoar-frost in the mornings. The minimum registered was 17° Fahr. The Talanta plateau was much warmer, owing probably to the deep warm ravines of the Jita and Beshilo, which flank it on either side.

Mr. Markham, in conclusion, summed up the geographical results of the expedition, and mentioned the work done in other departments of science, particularly in geology by Mr. Blanford, and in meteorology by Dr. Cooke. The officers of the Indian Trigonometrical Survey had also completed the mapping of the eastern portion of the Abyssinian highlands.

The Memoir, together with the three preceding ones, will be printed entire in the 'Journal,' vol. xxxviii.

The PRESIDENT, in returning the thanks of the meeting to Mr. Markham for his vivid description of the country over which the British army had marched, said that the present was the fourth paper which he had sent home during the campaign. We could not have found any man more capable of observing the geographical features, and of describing well what he had seen. He had already told them that Mr. Markham lost no opportunity of attending to his main object. Even in the day of that great excitement when Magdala was taken, he himself, being one of the first party to enter the hill fortress and to see the dead body of Theodore, succeeded in making two observations for latitude. Alluding to the touching episode Mr. Markham had given them respecting the last days of King Theodore, he added that it was the first clear account which had been given of the last days of a man who, although he was a barbarous king, had striven zealously and with considerable capacity to render Abyssinia an united country.

Fourteenth Meeting, 22nd June, 1868.

SIR RODERICK I. MURCHISON, BART., K.C.B., PRESIDENT,
in the Chair.

PRESENTATION.—*T. Plowden, Esq.*

ELECTIONS.—*George Harvey, Esq.; William Rankin, Esq.; Gustaf Roos, Esq.; Rev. J. S. S. Robertson, M.A.*

ACCESSIONS TO THE LIBRARY FROM JUNE 11 TO JUNE 22, 1868.
—'Marchand's Voyage, 1790-92.' 2 vols., 4to. Chenier's 'Moro-
rocco, 1788.' P. M'D. Collins' 'Voyage down the Amoor, 1860.'
B. F. Bourne's 'Captivity in Patagonia.' 1853. J. B. Fraser's

'Travels in Koordistan.' 1834. Donor, J. V. H. Irwin, Esq. 35 Volumes of Reports and other Documents relating to La Plata, Uruguay, Santa Fè, Buenos Aires, Confederacion Argentina, &c. Donor, T. J. Hutchinson, Esq. 'The Philippine Islands, Moluccas, Siam, Cambodia, Japan, and China, at the close of the 16th Century.' Hakluyt Society's Publications. 'The Alpine Journal; a Record of Mountain Adventure and Scientific Observation, by Members of the Alpine Club.' Donor, the Alpine Club. 'The Student's Manual of Ancient Geography,' by W. L. Bevan, edited by W. Smith. Murray, 1867. Donor, the publisher. Anderson's 'Narrative of an Embassy to China in 1792-94.' Donor, S. M. Drach, Esq. 'Exploration of the River Javari by Señor R. y Paz Soldan.' 1867.

The following Papers were read :—

- 1.—*Route from Erzerum to Diarbekr.* By JOHN G. TAYLOR, Esq.,
H.M. Consul, Diarbekr.

AN abstract of this lengthy and important paper, communicated by the author to Mr. J. K. Lynch, F.R.G.S., was read to the meeting. Mr. Taylor stated that from Erzerum as far as Erzengan his route lay over an often-travelled country, and being well known did not require any further description; but from Erzengan he traversed a country, as far as Mazgerd and Kharput, hitherto quite unknown to Europeans, even to that old Asiatic traveller Barbaro, though he must have been very near the line of road which he (Mr. Taylor) found so well repaid his trouble.

By reference to the map it would be seen that only two practicable routes are known from the north through the Deyrsim Mountains to the plain of Kharput. They both concentrate at Mazgerd, and had already been described by Mr. Taylor in a paper transmitted to the Royal Geographical Society. The object of the present journey was to trace a third route through the mountains, also to Mazgerd, the debouching point, as shown in the paper above mentioned, of all communications between Kharput and the north; and to search for ancient inscriptions, which—Mazgerd having occupied, as the author had pointed out, a prominent place in that period—he hoped would be found in its vicinity; both objects, he was glad to report, had been realised.

In his previous memoir he had given a full account of Mazgerd,—its old Pyre appertaining to the Parsee worship, and some facts relative to its ancient history,—a recapitulation of which would here be useless; but it was necessary to bear that description in mind, as adding much interest to the present route, which leaving Erzengan